

Sir, It's now the 18th of April, since that above; Col. Beckford is finely Recovered, and the other almost Cured of his Ulcers, so that the Water is beyond doubt, and many are resorting to it. And since that time I have tryed several Water-Springs, and Rivers hereabouts, and find them all ting'd with some Metal or other, more or less, so that we know not the Riches that may be in the Earth, nor the Value of the Vegetables; and it's pity some Ingenious People are not employed to enquire into them.

Whether this be worth your Reading or no, I know not; however, I pray you to accept of it from

Tours, &c.

III. An Account of a strange kind of Earth, taken up near Smyrna, of which is made Soap, together with the way of making it, Communicated by Dr. Edward Smith, F.R.S.

HERE is a considerable natural Curiosity in the Neighbourhood of *Smyrna*, call'd by the *Franks Soap-Earth*, and has no other proper distinguishing Name among the *Turks* or *Greeks*. 'Tis found only in two Places near *Duraclea*, a large open Village, about six Leagues to the Eastward of *Smyrna*; and in a very flat plain, about a League Westward of the River *Her-mus*. 'Tis a fine Soap, and at the first gathering whitish Earth, which boileth or shoots up out of the Earth. 'Tis gathered always before Sun Rise, and in Mornings when there falls no Dew, so that a stock must be laid in for the whole Year in the Summer Months. It comes up in some Places an Inch or two above the Surface of the

the Ground. But the Sun Rising upon it, makes it to fall down again. The Earth producing it lies low in both Places, and is in the Winter washy ; 'tis covered, tho' but thinly with Grass.

I suspected at my first observing it, that the Neighbourhood of the Sea might Impregnate the Ground about *Hermus* which produceth it, with the Salt this Earth affords for the making Soap : But the Ground producing it about *Duraclea*, lying several Leagues from the Sea, seems to overthrow this Speculation ; and the Sea seems but little concerned in this Production. Of this Earth I gathered and brought to *Smyrna*, but had not the Satisfaction to see it before Sun Rise. Every Morning there is a new Crop, tho' all be taken away which the Preceding Day afforded.

To Discover what quantity of Salt this Earth contains, I had the following Experiments made.

Three hundred Drams put into a Retort in *Balneo Arenæ* for twelve Hours *cum Igne Violento*, gave between five and six Ounces of an insipid Phlegma, the smell only such as proceeds in such Operations from the Fire.

Finding therefore no Volatile Salt, as what must have come over by the foregoing Experiment ; Two hundred Drams Calcined at a Bagnio Fire, in a *German Crucible*, were dissolved in Water. The Composition of Earth and Water boiled into a Lixivium made Five hundred Drams. It was boiled for three Hours, still skimming off the Froth, then Filtered, after Evaporated over a gentle Fire, it was kept to Chrystallize, and appear'd of a fixed Salt. —

Going to a Soap House to know how it was used there, I had the following Account ; they mix $\frac{3}{4}$ of Earth with $\frac{1}{2}$ of Lime, and Dissolve the Composition in boiling Water ; where stirring it often with a Stick there floats a

top

top a thick Brownish Substance, which Skumming off they preserve in Basons apart ; and this Skum is much richer then the Liquor underneath, yet both are used in making the Soap. Into a large Copper Caldron they put fifty Kintals of Oyl, applying a very hot Fire, which burns continually until the Soap is made. When the Oyl has boiled, they begin to throw in of the Skum, and sometimes of the Liquor from which the Skum was taken. They often repeat this, throwing in of the Skum and Liquor for thirteen or fourteen Days, in which time the Soap is usually perfected. The brownish Skum, and what is useful of the Liquor, Incorporating with the Oyl, what is useless sinks to the bottom of the Caldron, where it is let out to make room for throwing in more. The Water thus let out is again thrown upon a new Composition of Earth and Lime, but when the Liquor becomes wholly insipid, 'tis then judged to be exhausted : After thirteen or fourteen Days, when the Soap is finished, 'tis laded out of the Boiler, and laid upon a Lime Floor to dry.

They proportion two Load of Earth of five Kintals each, to fifty Kintals of Oyl ; the Produce is between seventy and eighty Kintals of Soap.

The Earth is bought at a Dollar a Load, and the Soap when this Account was made, at $6 \frac{3}{4}$ a Kintal. There is employed in making Soap yearly at *Smirna* 10000 Kinatls of Oyl.

Bringing Soap Earth employs 1000 Camels, every Day throughout the Year, or rather 1500 daily for eight Months ; the four Summer Months being too hot for Camels to Travel.

An ordinary Soap House produces a thousand Dollars a year clear Profit, *communibus Annis.*